DEFINITE PROJECT REPORT WITH INTEGRATED ENVIRONMENTAL ASSESSMENT

FOR SECTION 14 EMERGENCY STREAMBANK PROTECTION

CEDAR CREEK

BRIDGE NO. F-2-1-20-00

MONROE COUNTY, IOWA

FEBRUARY 1990

(REVISED MAY 1990)

US Army Corps
of Engineers
Rock Island District

DEPARTMENT OF THE ARMY
ROCK ISLAND DISTRICT, CORPS OF ENGINEERS
CLOCK TOWER BUILDING—P.O. BOX 2004
ROCK ISLAND, ILLINOIS 61204-2004

REPLY TO
ATTENTION OF

CENCR-PD-F

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MONROE COUNTY, IOWA

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ACKNOWLEDGEMENT

Many members of the Rock Island District assisted in the preparation of this report. Primary study team personnel familiar with the technical aspects of the study are listed below:

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SYLLABUS

This report addresses the problem of streambank erosion on Cedar Creek at County Bridge No. F-2-1-20-00 near Hiteman, Monroe County, Iowa. The study area is located on the right descending bankline at the north bridge abutment, in sec. 2, T. 72 N., R. 18 W., Guilford Township.

A study was initiated on April 12, 1989, under the authority of Section 14 of the 1946 Flood Control Act, as amended, to provide assistance to Monroe County, Iowa, for protecting the north bridge abutment from further damages due to the eroding bankline.

This Definite Project Report recommends that riprap be placed along approximately 350 linear feet of the bankline at the north bridge abutment. It also recommends that a farm drainage ditch on the upstream side of the abutment be straightened and riprapped to divert the drainage from the bridge abutment and piers.

The total estimated cost for the project is $43,850, with a benefit-to-cost ratio of 9.0. The project satisfies the criteria for Federal participation and is recommended for construction.

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CEDAR CREEK
COUNTY BRIDGE NO. F-2-1-20-00
MONROE COUNTY, IOWA

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CEDAR CREEK
COUNTY BRIDGE NO. F-2-1-20-00
MONROE COUNTY, IOWA

SECTION 1 - INTRODUCTION

STUDY REQUEST

In a letter dated February 16, 1989, the Monroe County, Iowa, Board of Supervisors requested assistance from the Rock Island District, Corps of Engineers, under the authority provided by Section 14 of the 1946 Flood Control Act, as amended. The request was in regard to erosion along the right descending bankline of Cedar Creek at County Bridge No. F-2-1-20-00, near Hiteman, Iowa.

Rock Island District representatives made a site visit to determine the severity of erosion and what should be done to curtail further erosion.

The Rock Island District informed the Monroe County Engineer on April 12, 1989, that a study was being initiated to determine the economic feasibility of providing erosion protection for County Bridge No. F-2-1-20-00 in Guilford Township.

STUDY AUTHORITY

The authority for this study and report is Section 14 of the 1946 Flood Control Act, as amended by the Water Resources Development Act of 1986. The authority, as amended, states:

> That the Secretary of the Army is authorized to allot from any appropriations heretofore and hereinafter made for flood control, not to exceed $12,500,000 per year, for the construction, repair, restoration, and modification of emergency streambank and shoreline protection work to prevent damages to highways, bridge approaches, public works, churches, hospitals, and schools, and other nonprofit public services, when in the opinion of the Chief of Engineers such work is advisable: Provided, that no more than $500,000 shall be allotted for this purpose at any single locality from the appropriations for any one fiscal year.

STUDY SCOPE

STUDY AREA

The study area, as shown on plate 1, is located on the right descending bank of Cedar Creek, Guilford Township, approximately 1 mile northwest of Hiteman, Iowa, sec. 2, T. 72 N., R. 18 W., Monroe County.

DETAIL OF INVESTIGATION

This Emergency Definite Project Report with Integrated Environmental Assessment is intended to serve as the decision document, with sufficient detail to allow approval of the project and initiation of the preparation of plans and specifications.

RELATED STUDIES, REPORTS, AND EXISTING WATER PROJECTS

No previous study has been made of this area by the Rock Island District, Corps of Engineers.

SECTION 2 - PLAN FORMULATION

PUBLIC CONCERNS

The Monroe County Engineer has been concerned about continued erosion at County Bridge No. F-2-1-20-00 on Cedar Creek. A major flooding event in 1982 began the eroding process along the north bridge abutment. A farm drainage ditch has added to the problem by cutting under the bridge between two of the bridge piers.

EXISTING CONDITIONS

Bridge No. F-2-1-20-00 was constructed over Cedar Creek in 1980. A disastrous flooding event in 1982 caused severe erosion which exposed the pilings along the north bridge abutment. The county attempted to preserve the bankline, but another major flood event in 1986 and limited funding for

adequate bankline protection have contributed to the erosion which now threatens the integrity of the bridge.

The area of concern is approximately 350 linear feet along the north abutment. A farm drainage ditch on the upstream side of the bridge has cut under the bridge and enters the creek between two of the bridge piers.

FUTURE CONDITIONS WITHOUT PROJECT

The historical erosion rate is calculated at 3.5 feet per year. If action is not taken to curtail further erosion, it is very probable that the north bridge abutment will be undermined, causing failure and loss of use.

When the bridge was built in 1980, the contractor filled, compacted, and shaped the bankline to provide a 2H on 1V slope which serves as adequate protection required for bridge abutments.

In 1982 a major flood event occurred, causing considerable damage to roads and bridges. At that time, the county was declared a disaster area by the State of Iowa. The county attempted to protect all of their bridges and roadways, but, due to limited funding, found it difficult to adequately protect each area. In 1986, another major flood event occurred, leaving the pilings exposed at the north bridge abutment.

The occurrence of another flood event, such as the ones in 1982 and 1986, will increase the probability of losing the north bridge abutment, rendering the bridge impassible.

PLANNING OBJECTIVES

NATIONAL OBJECTIVES

The plan formulation process to accomplish flood damage reduction is formulated and directed by a national planning objective, consistent with protecting the Nation's environment, pursuant to national environmental statutes, applicable Executive Orders, and other Federal planning requirements.

Water and land related resources project plans should be formulated to alleviate problems and to take advantage of opportunities in ways that contribute to that objective.

Contributions to the National Economic Development (NED) are increases in the net value of the national output of goods and services, expressed in monetary units. Contributions to NED are the direct benefits that accrue in the planning area and the rest of the nation, and include increases in

the net value of those goods and services that are marketed, and those that may not be marketed.

SPECIFIC OBJECTIVES

Specific objectives include preventing economic losses due to failure of County Bridge No. F-2-1-20-00 and minimizing adverse impacts of flood damage reduction measures on these resources.

PLANNING CONSTRAINTS

This study is constrained by all laws of the United States and the State of Iowa, all Executive Orders of the President, and all engineering regulations of the Corps of Engineers. This study also is constrained by the study authority as stated in Section 1 of this report.

ALTERNATIVE SOLUTIONS

Two alternatives were considered in detail to curtail the erosion in the study area: placement of a concrete-filled mattress, or riprap in conjunction with realignment of the farm drainage ditch.

SELECTED PLAN

Analysis revealed that the riprap alternative along the bankline and realignment of the drainage ditch is the least costly and maximizes net benefits. This alternative effectively would curtail the severe erosion which is threatening to damage County Bridge No. F-2-1-20-00.

The proposed work consists of realigning approximately 20 feet of the existing farm drainage ditch and placing riprap along the ditch to keep it from cutting back under the bridge. An 18-inch layer of riprap on a 6-inch bedding layer will be placed on the shaped bankline for approximately 350 linear feet, up to the abutment, to provide a minimum of a 2H on 1V slope, with an additional 5 feet of riprap extending the toe. End protection also will be added on the upstream end of the project area (see plate 3).

The total estimated amount of material to be placed beneath the calculated ordinary high water (OHW) elevation of 751.8 feet NGVD is 0.63 cubic yard per linear foot of river bank. The proposed project meets criteria for Nationwide Permit at 33 CFR 330.5 (a)(13). Section 404 of the Clean Water Act is satisfied; therefore, an individual Section 404 (b)(1) evaluation is not required, nor is an individual Section 401 Water Quality Certification

required from the Iowa Department of Natural Resources (IDNR). These requirements already have been fulfilled for the Nationwide Permit (see CENCR-OD-SP Memorandum, dated September 26, 1989, in Appendix A - Pertinent Correspondence). The finished riprap project will be physically and chemically stable and noncontaminating.

The local sponsor, the Monroe County Board of Supervisors, will be responsible for the operation and maintenance of the completed project, as prescribed by the Corps of Engineers.

HYDRAULIC ANALYSIS AND BANK PROTECTION DESIGN

Flow Analysis

Flow frequency relationships were developed for the Cedar Creek at a county road bridge near Hiteman, Monroe County, Iowa, with a drainage area of about 137 square miles. The peak flow discharges for the 10-, 50-, and 100-year events were computed using Methods for Estimating the Magnitude and Frequency of Floods at Ungaged Sites on Unregulated Rural Streams in Iowa. The Region 3 equations are shown below.

$$Q\ 10 = 381\ A^{.57}$$
$$Q\ 50 = 695\ A^{.54}$$
$$Q\ 100 = 851\ A^{.53}$$

Where A = drainage area in square miles
Qt = t-year discharge in cubic feet per second (cfs)

The frequency curve for the project site is shown on plate 4.

Since the project site is located about 15 miles upstream of Bussey, Iowa, the duration curve at the project site was computed by adjusting the discharges at the Bussey gage using the drainage area ratio equation shown below.

$$\text{Project site flow} = \text{Bussey flow} \times \left(\frac{\text{drainage area project site}}{\text{drainage area Bussey}}\right)^{.5}$$

The Bussey, Iowa, gage (station No. 05489000) has a drainage area of 374 square miles and 41 years of peak flow records. The resulting flow duration curve for the project site is shown on plate 5.

Bank Protection Recommendation

It is recommended that a graded riprap placed on a 1V to 2H cut-and-filled slope with a 6-inch bedding layer be used as protection from future erosion. The graded riprap design is recommended for protection from shear forces as well as piping failures.

a. Riprap Design - An 18-inch layer of riprap was designed for this site. Using a density of 165 pcf results in a D50 of 0.81 foot. In the absence of specific velocity data, it would be reasonable to estimate expected velocities based on experience with flow measurements made on Cedar Creek at the project site. Based on these measurements, it appears the riprap should be designed to withstand maximum velocities of up to 9 fps, which is the maximum velocity associated with observed flows during high water measurements at the project site in 1961. A local boundary shear of 0.86 psf was calculated using the following equation:

$$T_o = \frac{GV^2}{\left(32.6 \log \frac{10^{\circ} 2y}{10\ D50}\right)^2}$$

G = Unit weight of water (62.4 pcf)
V = Velocity = 9 fps
D50 = Stone diameter .81
y = Flow depth = 15 ft.

The problem area is located downstream of a bend in a relatively straight reach of stream; therefore, a bend coefficient was not calculated. Using a nonuniform flow factor of 1.5, the local boundary shear used for the design will be (1.5)(0.86)=1.29 psf. The riprap design shear for an 18-inch layer at a slope of 1V on 2H and a D50 of 0.81 foot was calculated to be 2.38 psf using the following equations:

$$T^1 = T\left(1 - \frac{\sin^2 c}{\sin^2 d}\right)^{0.5}$$

T^1 = slope design shear
c = slope angle (26.6)
d = angle of repose (40)
T = channel bottom design shear

$$T = a\,(G_s - G)\,D50$$

a = 0.040
D50 = 0.81 ft.
G_s = Unit stone weight (165 pcf)
G = Unit water weight (62.4 pcf)

The required riprap design gradation was determined in accordance with procedures in EM 1110-1601 and ETL 1110-2-120. From the preceding shear analysis, an 18-inch riprap layer should provide more than adequate protection from future bank erosion. The following is the required minimum riprap gradation:

Percent Lighter by Weight	Limits of Stone wt., lbs.
100	292-117
50	86-58
15	43-18

Any riprap placed under water should be 24 inches thick. The riprap blanket should extend beyond the toe of the bank, and the ends of the blanket should extend beyond the limits of existing erosion. A 6-inch-thick bedding layer should be provided under the riprap.

Ordinary High Water Elevation

The ordinary high water elevation corresponds to the 25-percent duration flow. The 25-percent duration flow was determined to be 85 cfs for the project site. Using a normal depth analysis, an approximate OHW elevation of 751.8 feet was determined for the site.

ENVIRONMENTAL ASSESSMENT

Purpose and Alternatives

The purpose of this Environmental Assessment (EA) is to evaluate the impacts of various measures proposed to prevent the failure of County Bridge No. F-2-1-20-00 due to erosion by Cedar Creek. The alternatives considered included reshaping and riprapping the river bank, concrete mattress, and no action. The selected plan, bank shaping and riprapping, is described in detail in Section 2 of this report.

An environmental review of the selected alternative indicates that there would be no significant effects on the environment, with any effects being short-term and minor. Thus, an Environmental Impact Statement (EIS) will not be prepared. Because the proposed action meets the criteria for a Nationwide Permit at 33 CFR 330.5 (a)(13), the project will comply with the provisions of Section 404 of the Clean Water Act; therefore, a Section 404 (b)(1) Evaluation will not be prepared and State Section 401 Water Quality Certification will not be required.

Relationship to Environmental Requirements

The proposed action would comply with Federal environmental laws, Executive Orders and policies, and State and local laws and policies, including the Clean Air Act, as amended; the Clean Water Act, as amended; the Endangered

Species Act of 1973, as amended; the Fish and Wildlife Coordination Act of 1958, as amended; the Land and Water Conservation Fund Act of 1966, as amended; the National Historic Preservation Act of 1966, as amended; Executive Order 11988, Floodplain Management; and Executive Order 11990, Protection of Wetlands.

The proposed action would not result in the conversion of farmland to nonagricultural uses; therefore, the Farmland Protection Policy Act of 1981 does not apply to this project. Because Cedar Creek is not a federally recognized wild or scenic river, the project will not conflict with the provisions of the Wild and Scenic Rivers Act of 1968.

Environmental Setting

Cedar Creek, a tributary of the Des Moines River system, flows in a generally northerly direction through the south-central portion of Iowa. The project area is located on the right descending bank of the creek, and the surrounding landscape is primarily agricultural fields with some wooded edges.

Natural Resources

The project site is located on an outside bend of the creek channel. Substrate at this point is primarily sand and silt. Existing conditions at the project site were described in detail earlier in this section.

Vegetation along the streambank consists of a mixture of grasses and forbs with a few woody shrubs on the lower portion of the slope. This habitat would provide limited food and cover for wildlife species which utilize riparian and open-field edge areas.

Two federally recognized endangered animal species are listed for this area: the bald eagle (Haliaeetus leucocephalus) and the Indiana bat (Myotis sodalis). The bald eagle feeds in open tailwater areas of dams along the Mississippi River and its major tributaries during winter months. The project site is not located near a dam tailwater, and no trees at the site appear to be suitable perch trees for eagles. Suitable habitat for the Indiana bat (loose bark of trees) is not found at the project site. For these reasons, no impacts to these species are expected to result from the proposed action.

Environmental Effects

No significant adverse impacts would result from construction of the proposed project. Temporary disturbances to local wildlife may occur

during the construction phase. However, the existing conditions along the project reach are of little value to wildlife at present.

Some minor loss of benthic organisms may result during construction of the project. However, after placement of riprap is completed, the affected area should be quickly recolonized. Any impacts to the river system during the construction phase of the project will be minor and offset by the ultimate preservation of the lift station and river bank. The proposed project will reduce erosion of the creek bank and siltation of the channel, and alleviate the possibility of the bridge collapsing.

Temporary increases in turbidity may occur during project construction, but levels of turbidity will return to preconstruction levels or lower since sediments will no longer be eroding into the river system. In addition, there will be an increase in noise levels and a decrease in air quality during the construction phase. However, these are minor impacts and will not permanently affect the area.

Economic and Social Effects

The socioeconomic impacts associated with providing streambank erosion protection for the county bridge would be positive. The project would provide for continued use of the bridge, eliminating detours and the need to rebuild the structure. Community cohesion would be enhanced, as the project would prevent loss of the county's bridge and would be less expensive than other alternatives (e.g., relocation). In addition, the project would require no residential relocations and would result in no significant impacts to community or regional growth.

Public facilities and services would benefit from reduced damages from flood-related erosion. The bridge would not fail due to erosion, and relocation of the facility would be avoided. The project would eliminate potential life, health, and safety threats associated with loss of the affected county bridge.

The project would result in no significant impacts to property values or related tax revenues. Project construction would result in no noticeable impacts to employment or the labor force in Monroe County, Iowa. No changes in business or industrial activity would be noticed during or after construction, and no business or farm relocations would be required.

Heavy machinery would generate temporary increases in noise levels during construction; however, disturbance to nearby residents and businesses would be minimal. No significant long-term impacts would result. The aesthetics of the affected waterway property would not be adversely impacted; the existing shoreline is badly eroded and features little vegetative cover.

Cultural Resources

The State Historical Society of Iowa, Historical Division of the Department of Cultural Affairs, found that there are no historic properties which might be affected by the proposed undertaking. However, if the project work uncovers an item or items which might be of archeological, historical or architectural interest, of if important new archeological, historical, or architectural data come to light in the project area, reasonable efforts should be made to avoid or minimize harm to the property until the significance of the discovery can be determined.

Coordination

Coordination with the public and governmental agencies has been maintained during the planning process. Under the Fish and Wildlife Coordination Act, the IDNR and the U.S. Fish and Wildlife Service were contacted by telephone. The U.S. Environmental Protection Agency also was contacted by telephone under the provisions of the National Environmental Policy Act and the Clean Air Act. The State Historical Society of Iowa found no historic properties which might be affected by the proposed project in their letter dated October 23, 1989. The agencies contacted agreed with the evaluation that the net effect of the proposed action would not be significant (see Appendix A). Individual agency concerns were addressed earlier in this report.

REAL ESTATE REQUIREMENTS

The project site is located in Guilford Township, sec. 2, T. 72 N., R. 18 W., Monroe County, Iowa, along the right descending bank of Cedar Creek, at County Bridge F-2-1-20-00. The project requires a temporary construction easement for approximately 0.6 acre which is privately owned. The county has a 30- to 45-foot right-of-way at the bridge site. The real estate cost estimate for the study site is based on no existing improvements in the easement area which require acquisition or relocation. No funds are included for crop damage.

The cost estimate is as follows:

Temporary Easement (6 mos.) over 0.6 acre	$300.00
Contingencies	50.00
Acquisition Cost	500.00
Total Real Estate Cost Estimate:	$850.00

ECONOMIC ANALYSIS

Methodology

This study assesses the feasibility of providing protective action necessary to curtail bank erosion around the Cedar Creek bridge. Erosion is threatening the pilings of the Cedar Creek bridge north from Hiteman to Route 5 in the central portion of Monroe County, Iowa. The annual benefits and costs of the action were computed using October 1989 price levels and an 8-7/8 percent discount rate. The period of analysis is 50 years and assumes the historic rate of erosion to be approximately 3.5 feet per year since 1980. The historic erosion rate was determined by comparing recent Corps survey data to historical data furnished by the Monroe County Engineer.

Benefits of Protective Action

The benefits of protective action are derived from a consideration of what would occur if no action were taken. Four potential categories of benefits were examined: (1) detour; (2) road maintenance costs; (3) land loss; and (4) redevelopment.

(1) Detour Costs. Without protective action, the erosion will cause failure of the bridge during the project base year (1991), closing it to traffic. With no replacement of the bridge, motorists will be forced to use a longer, alternate route throughout the 50-year period of analysis. Motorists using the detour route will incur additional expenses related to costs for operating vehicles and opportunity of time costs. Benefits derived from avoided detour costs were computed based on the following:

(a) In 1988, the average daily traffic count on the bridge was 60 vehicles, as reported by the Monroe County Engineer. This average daily traffic was categorized by vehicle type, detour days per year, and average number of trips per detour day (see table 1).

TABLE 1

Analysis of 1988 Average Annual Traffic

Vehicle Type	Detour Days Per Year	Average Daily Number of Trips	Total Annual Number of Trips (Rounded)
Passenger Cars	365	42.4	15,487
Heavy Trucks	302	15.6	4,711
School Buses	180	4.4	792
Mail Vehicles	302	1.0	302
Farm Machinery	118	2.6	306
Emergency Vehicles	365	0.3	104

Total Annual Number of Trips for All Vehicles = 21,900

$\frac{21,900}{365 \text{ Days}}$ = 60 vehicles/day

(b) The most direct detour route would necessitate that an additional 5.2 miles be driven, or 10.4 miles round trip. Other combinations of detour routes would further increase detour mileage.

(c) Mail vehicles, farm machinery, and heavy trucks would have no passengers. Passenger cars would have an average of 2 persons; emergency vehicles would have 2 occupants. School buses would have a driver and an average busload of 16 passengers.

(d) The 1989 average variable cost for operating passenger cars and mail vehicles is approximately $0.21/mile; buses, emergency vehicles, and heavy trucks, $0.44/mile; and farm machinery, $0.76/mile. These figures are based on average maintenance, repair, accessory, tire, fuel, and oil costs, including taxes on gasoline, oil, and tires (see table 2).

TABLE 2

Summary of Vehicle Operating Costs
Resulting from a 1-Year Road Detour

Vehicle Type	Extra Mileage Per Day [1] (A)	Total Annual Number of Trips (B)	Operating Cost Per Mile ($) (C)	Total Additional Operating Cost Per Year ($) (A x B x C)
Passenger Cars	5.2	15,487	0.21	16,910
Heavy Trucks	5.2	4,711	0.44	10,780
School Buses	5.2	792	0.44	1,810
Mail Vehicles	5.2	302	0.21	330
Farm Machinery	5.2	306	0.76	1,210
Emergency Vehicles	5.2	104	0.44	240
			Total Cost ($) =	31,280

[1] One-way detour mileage is 5.2 miles.

(e) The opportunity cost of time is the value of work or of leisure activities foregone for travel purposes. For passenger cars, the value of time for adults and children was assumed to equal one-third and one-half of the average hourly general wage rate, respectively. The Albia, Iowa, area 1989 average hourly wage rate is approximately $5.79, with 27 percent of the area residents being under the age of 18. Therefore, the opportunity cost of time for passenger cars was assumed to be $1.49/hour/occupant ($5.79 x 0.7 x 1/3) + ($5.79 x 0.30 x 1/12) = $1.49).

(f) Approximate hourly wage rates were used as values of time for school bus drivers ($4.52), mail carriers ($12.00), emergency vehicle drivers ($6.12), farm machinery operators ($7.00), and heavy truck operators ($5.36). School buses require an opportunity cost of time amounting to $12.24/hour for 1 driver and 16 children ($4.52 + ($5.79 x 1/12 x 16) = $12.24). (See table 3.) It is assumed that the vehicles were traveling at 40 mph and the 5.2-mile drive took 0.13 hour.

TABLE 3

Summary of Opportunity of Time Costs
Resulting from a 1-Year Road Detour

Vehicle Type	Traveler Time Per Trip in Hours (A)	Total Annual Number of Trips (B)	Opportunity Time Cost Per Hour ($) (C)	Total Opportunity Time Cost Per Year($) (A x B x C)
Passenger Cars	0.1	15,487	1.49	2,310
Heavy Trucks	0.1	4,711	5.36	2,520
School Buses	0.1	792	12.24	970
Mail Vehicles	0.1	302	12.00	360
Farm Machinery	0.1	306	7.00	210
Emergency Vehicles	0.1	104	6.12	60
			Total Cost ($) =	6,430

(g) As shown in tables 2 and 3, detour costs resulting from increased vehicle operating costs and opportunity of time costs amount to $31,280 and $6,430, respectively. The total benefit of avoiding these detour costs is $37,710.

(2) Road Maintenance. Closure of Cedar Creek Bridge would result in no change in road maintenance cost. The annual maintenance cost for the detour route would increase by a dollar amount equal to the decrease in maintenance costs for the closed roadway, as explained by the Monroe County Engineer's representative.

(3) Land Loss. Benefits derived from avoided land loss are not applicable in this instance.

(4) Redevelopment Benefits. Monroe County, Iowa, does not qualify for redevelopment benefits.

(5) Total Benefits. Total benefits of the protection action are $37,710 in detour cost avoidance.

Cost of Recommended Action

The Rock Island District identified bank riprapping as the least-cost alternative for protecting Cedar Creek bridge from failure caused by erosion around the bridge abutment. Action also is required to prevent further erosion around the right downstream bankline. The preventive action involves riprapping the bank and realigning a farm drainage ditch, at an estimated total first cost of $43,850. Detailed project first costs

and average annual costs, computed at an 8-7/8 percent discount rate over a 50-year period of analysis, are shown in tables 4 and 5. Annual maintenance was calculated assuming that 50 percent of the riprap would be replaced in 25 years (in year 25 following the project base year). Because of the short construction period, no interest during construction was calculated. A summary of benefits and costs for the recommended action is shown in table 6. The project is economically justified and is the NED plan.

TABLE 4

Detailed Estimate of Construction Costs
(October 1989 Price Levels)

Item	Quantity	Unit	Unit Cost ($)	Federal Cost ($)	Non-Federal Cost ($)
Riprap (and bedding)	1,300	ton	20.00	26,000	
Bank Preparation	350	LF	7.00	2,500	
Real Estate (temp.)					850
			Subtotal	28,500	850
			Contingencies	7,100	
			Subtotal	35,600	
			Engineering and Design	4,000	
			Supervision and Administration	3,400	
			Subtotal	43,000	
			Lands, Easements, and Rights-of-way	850	
			Total Project Cost =	43,850	

TABLE 5

Annual Cost of Recommended Action
(8-7/8 Percent Discount Rate, 50-Year Period of Analysis
October 1989 Price Levels)

Description	First Cost ($)	Annual Cost ($)
Total First Cost	43,850	3,900
Operation & Maintenance [(pw 25 x 0.5 x $26,000)CRF]		200
	Total Annual Cost:	4,100

TABLE 6

Summary of Benefits and Costs
(8-7/8 Percent Discount Rate, 50-Year Period of Analysis
October 1989 Price Levels)

Description	Amount
Project First Cost	$43,850
Annualized First Cost	$ 3,900
Annual Maintenance Cost	$ 200
Total Annual Cost	$ 4,100
Average Annual Benefits	$37,710
Net Benefits	$33,610
Benefit-to-Cost Ratio	9.0

Sensitivity Analysis

The Monroe County Engineer stated that the bridge is only 10 years old. Because of funding commitments and other necessary construction in the county, it would be many years before funds could be allocated to replace the bridge. A sensitivity analysis was done to determine project viability. Replacement of the bridge in 10 years would have a benefit-to-cost ratio (BCR) of 7.1, and replacement in 25 years would have a BCR of 2.1.

COST APPORTIONMENT

Recent legislation passed by Congress and signed by the President of the United States requires that all construction of Section 14 projects awarded after October 1, 1986, be cost-shared between the Federal Government and the non-Federal project sponsor. Project cost-sharing is in accordance with Public Law 99-662 of the Water Resources Development Act of 1986 and is designed to provide consistency among projects and programs and equity among sponsors of comparable works.

Under these provisions, the non-Federal project sponsor is to provide without cost to the Federal Government, during the period of construction, all lands, easements, rights-of-way, and dredged material disposal areas, and perform all relocations and alterations of building, utilities, highways, railroads, bridges (except railroad bridges and approaches thereto), sewers, and related and special facilities determined by the Government to be necessary for the construction of the project. To the extent that any of the lands, easements, or rights-of-way provided above are already owned as part of the facility or structure being protected, the value of such interests shall not be included in the total project costs nor credited towards the non-Federal project sponsor's required contribution. Aerial

facilities supported by poles or other means which, if damaged, could not normally cause adverse effects to the project structure, will be paid for by the project sponsor.

Provide during the period of construction, a cash contribution of 5 percent of the total project costs.

If the value of the allowable contributions provided above represents less than 25 percent of the total project costs, the non-Federal project sponsor shall provide during the period of construction, an additional cash contribution in the amount necessary to bring its total contribution equal to 25 percent of the total project costs.

The non-Federal project sponsor shall pay all costs in excess of the Federal statutory cost limitation of $500,000. Total cost apportionment for this project is shown in table 7.

TABLE 7

Cost Apportionment
(Estimated Total Project Cost = $43,850)

Non-Federal

Estimated Total Project Cost	$43,850
25-Percent Cost-Share	x 0.25
	$11,000
Less lands, easements and right-of-way	- 850
Total Non-Federal Cash Contribution	$10,150

Federal

Estimated Total Project Cost	$43,850
Less Non-Federal Share	-11,000
Total Federal Cost	$32,850

Ability to Pay Analysis

Section 103 of Public Law 99-662 requires the Corps of Engineers to evaluate a local sponsor's ability to pay the required non-Federal cost of a project. The county does not qualify for a reduced cost-sharing formula. The analysis is based on the project BCR and the project area per capita income, as shown in table 8.

TABLE 8

Ability to Pay Analysis

Annual Cost	$ 4,100	Costs and benefits
Annual Benefits	$37,710	for flood control.
Total Cost	$43,850	
Local Share	$11,000	
BCR	9.0	Sum of State and
State Factor	91.22	County must be less
County Factor	79.90	than 163.2.
		Sum is 171.12.

Not Qualified

Base Benefits Floor:	230%	1/4 BCR
Percent Local Share:	25%	
Eligibility Factor:	-0.70	

Financial Analysis

Monroe County, Iowa, is the local sponsor and is willing and able to pay its share of the project cost.

SECTION 3 - PLAN IMPLEMENTATION

CORPS OF ENGINEERS

This report will be processed for approval of the selected plan of action and the authorization of funding for construction. Upon approval and appropriation of funding by the Office of the Chief of Engineers, the Rock Island District will be responsible for preparation of plans and specifications and construction of the project.

COORDINATION

Details of the proposed project have been coordinated with the following Federal, State, and local agencies:

Monroe County, Iowa
Iowa Department of Natural Resources
Iowa State Historical Department, Office of Historic Preservation

U.S. Fish and Wildlife Service
U.S. Environmental Protection Agency

Records of correspondence with members of these agencies can be found in Appendix A - Pertinent Correspondence.

MONROE COUNTY

In compliance with Section 221 of Public Law 91-611, the county will, prior to the advertisement of any construction contract for the project, enter into an agreement (Local Cooperation Agreement) with the Government, whereby the county pledges to act as local sponsor for the proposed project and carry out the following responsibilities:

a. Provide during the period of construction a cash contribution of 5 percent of total project costs.

b. Provide all lands, easements, and rights-of-way, and dredged material disposal areas, and perform all relocations of utilities and facilities (excluding railroad bridges and approaches thereto) determined by the Government to be necessary for construction of the project.

c. If the value of the contributions provided under paragraphs a. and b. above represents less than 25 percent of total project costs, the county shall provide, during the period of construction, an additional cash contribution in the amount necessary to make its total contribution equal to 25 percent of total project costs.

d. Hold and save the Government free from all damages arising from the construction, operation, and maintenance of the project, except for damages due to the fault or negligence of the Government or its contractors.

e. Operate, maintain, repair, replace, and rehabilitate the completed project, or functional portion of the project, in accordance with regulations or directions prescribed by the Government.

f. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended by Public Law 100-17, and the Uniform Regulations contained in 49 CFR Part 24, in acquiring lands, easements, and rights-of-way for construction and subsequent operation and maintenance of the project, and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act.

g. Comply with all applicable Federal and State laws and regulations, including Section 601 of Title VI of the Civil Rights Act of 1964, Public Law 88-352, and Department of Defense Directive 5500.11 issued pursuant thereto and published in Part 300 of Title 32, Code of Federal Regulations, as well as Army Regulation 600-7, entitled "Nondiscrimination on the Basis

of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army."

h. Contribute all project costs in excess of the Federal statutory limitation of $500,000.

In addition, the county must grant the Government a right to enter, at reasonable times and in a reasonable manner, upon land which it owns or controls for access to the project for the purpose of inspection and for the purpose of completing, operating, maintaining, repairing, replacing, or rehabilitating the project if such inspection shows that the county for any reason is failing to fulfill its obligations under the Agreement and has persisted in such failure after a reasonable notice in writing by the Government, delivered to the county. No completion, operation, maintenance, repair, replacement, or rehabilitation by the Government in such event shall operate to relieve the county of responsibility to meet its obligations as set forth in the Agreement or to preclude the Government from pursuing any other remedy at law or equity.

The county is willing and able to pay its share of the total project costs. Sufficient funds are available through the county's road use budget, and the cash payment can be deposited directly with the Government or in an escrow account, upon demand by the Government.

The estimated total non-Federal share of the total project costs consists of $850 estimated real estate cost plus a cash contribution of $10,150. It is anticipated that the county will need to invest $200 annually to replace lost riprap during the 50-year project life.

SECTION 4 - RECOMMENDATION

I recommend that the plan selected herein, to provide riprap slope protection at County Bridge No. F-2-1-20-00, Monroe County, Iowa, be implemented as a Federal project, with a total cost to the United States presently estimated at $46,350. The plan involves the realignment of approximately 20 feet of a farm drainage ditch and the placement of riprap along approximately 350 linear feet of the bankline of Cedar Creek at County Bridge No. F-2-1-20-00. The bridge will be protected from damages which would cause the failure of the north bridge abutment.

John R. Brown
Colonel, U.S. Army
District Engineer

FINDING OF NO SIGNIFICANT IMPACT

SECTION 14 EMERGENCY STREAMBANK PROTECTION
CEDAR CREEK, BRIDGE F-2-1-20-00
MONROE COUNTY, IOWA

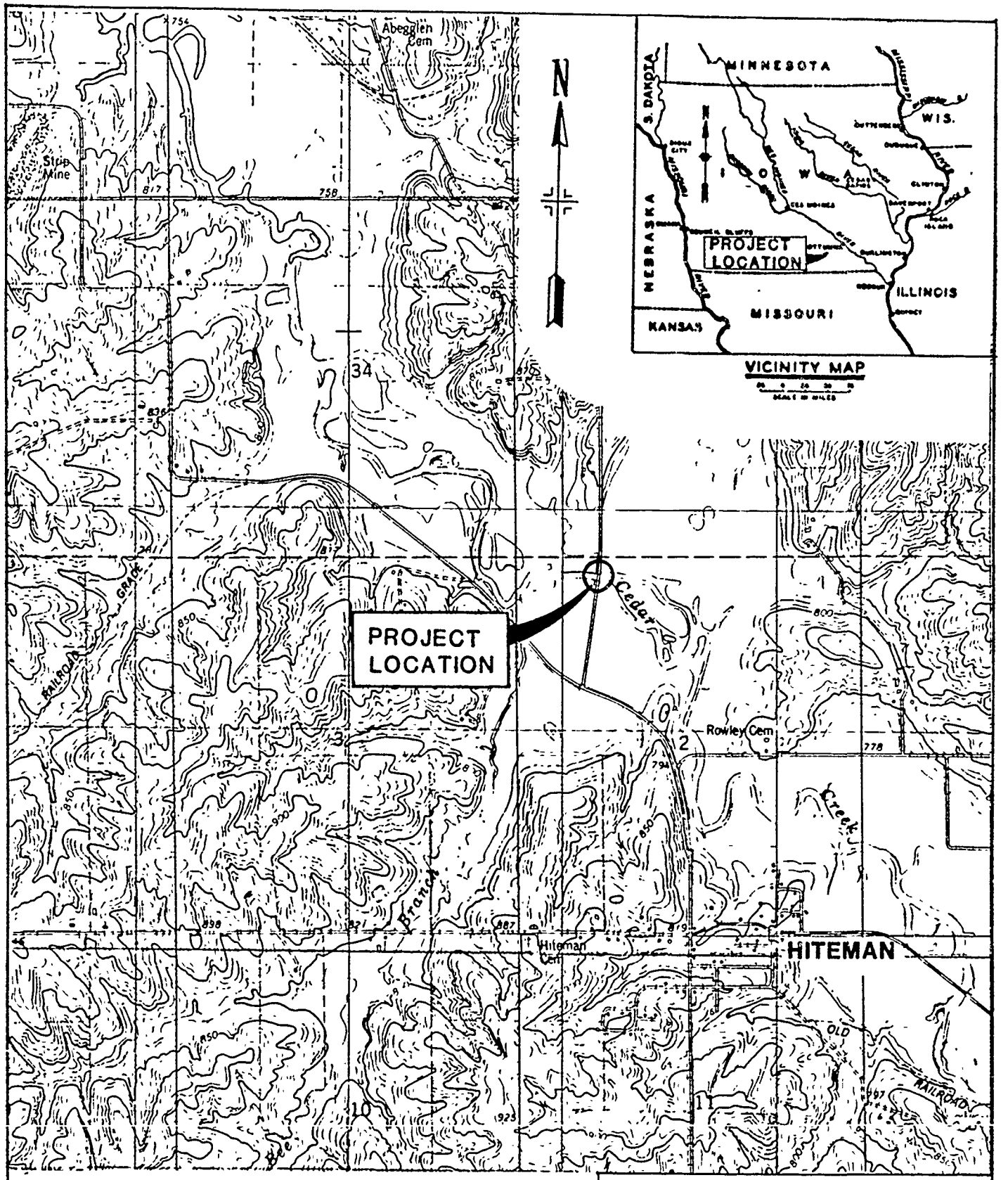
In accordance with the National Environmental Policy Act, the Rock Island District, Corps of Engineers, has assessed the environmental impacts of the above project. The intent of this project is to provide emergency bank protection along the right descending bankline of Cedar Creek at County Bridge No. F-2-1-20-00 near Hiteman, Monroe County, Iowa. The project involves placing riprap along approximately 350 linear feet of the bankline at the north bridge abutment and straightening and riprapping a farm drainage ditch on the upstream side of the abutment to divert the drainage from the bridge abutment and piers.

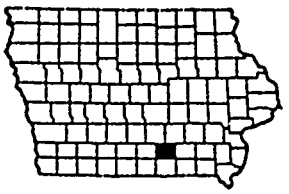
This Finding of No Significant Impact is based on the following factors: the project would have only minor and short-term impacts on fish and wildlife resources and on water quality; the proposed project would protect the north bridge abutment from further damages due to the eroding bankline; and no significant social, economic, environmental, or cultural impacts are anticipated as a result of the proposed action.

The environmental review process indicates that the proposed action does not constitute a major Federal action significantly affecting the environment. Therefore, preparation of an Environmental Impact Statement (EIS) is not required. This determination may be reevaluated if warranted by later developments.

4 May 1990
(Date)

John R. Brown
Colonel, U.S. Army
District Engineer



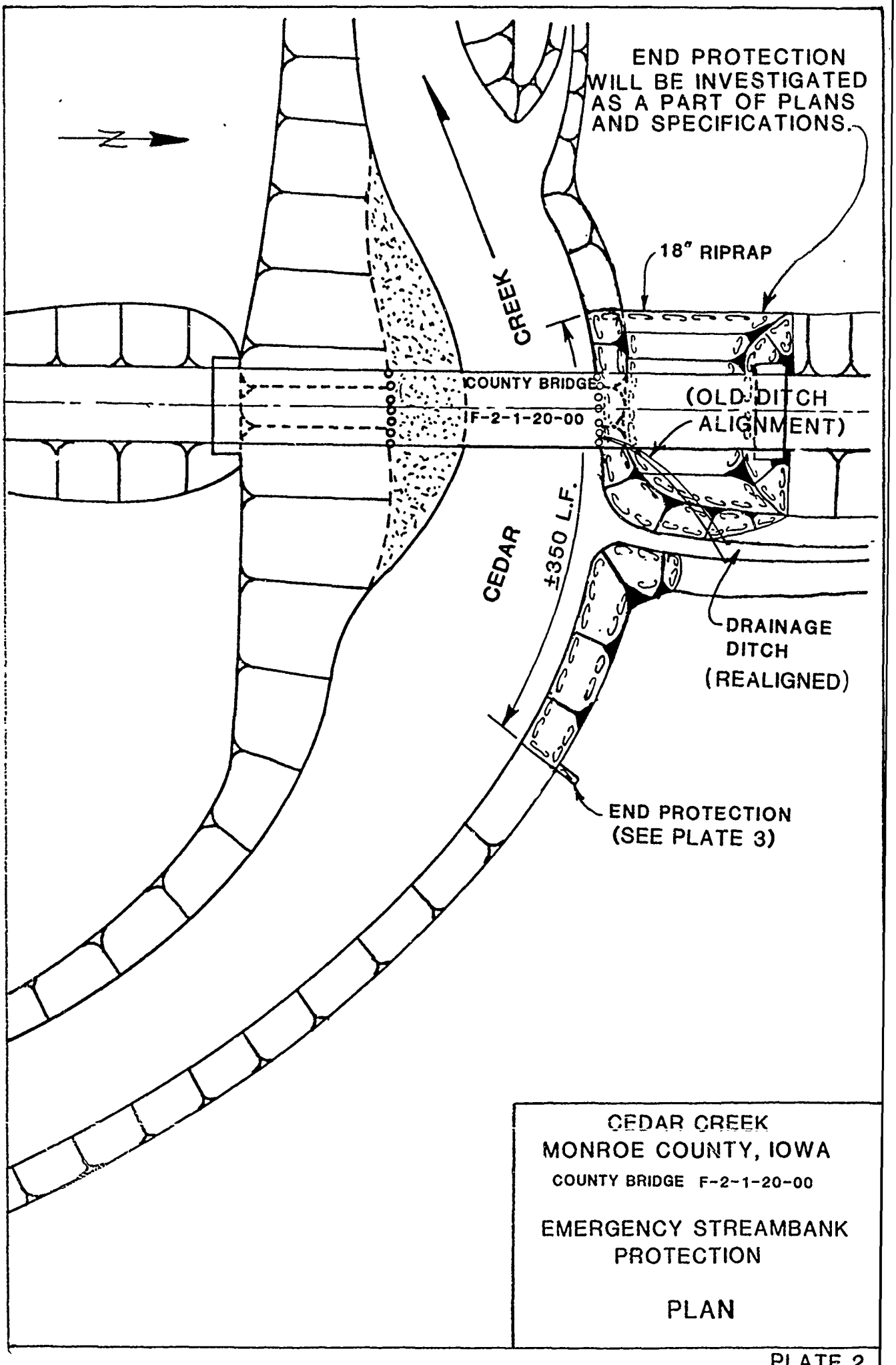


KEY MAP

SHOWING LOCATION OF COUNTY

EMERGENCY STREAMBANK PROTECTION
CEDAR CREEK
MONROE COUNTY, IOWA

GENERAL AREA MAP

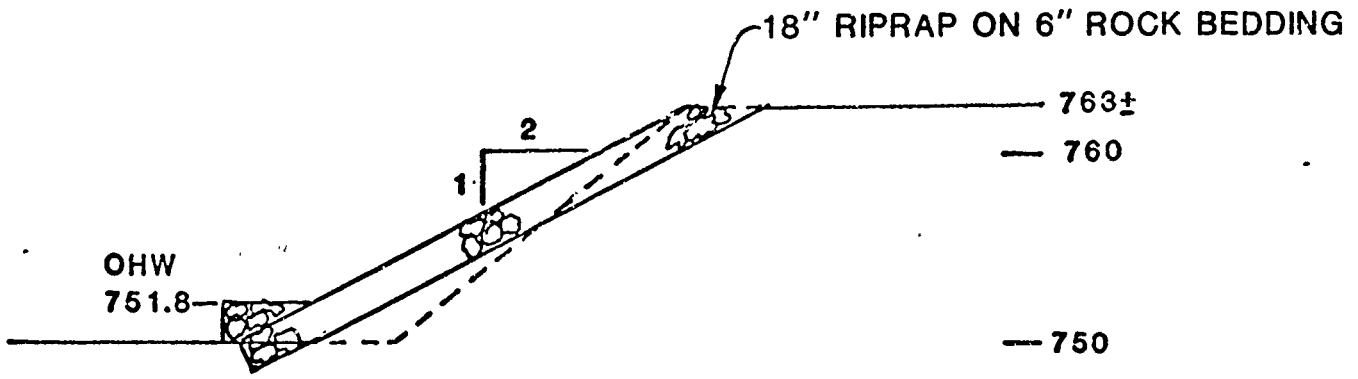


CEDAR CREEK
MONROE COUNTY, IOWA
COUNTY BRIDGE F-2-1-20-00

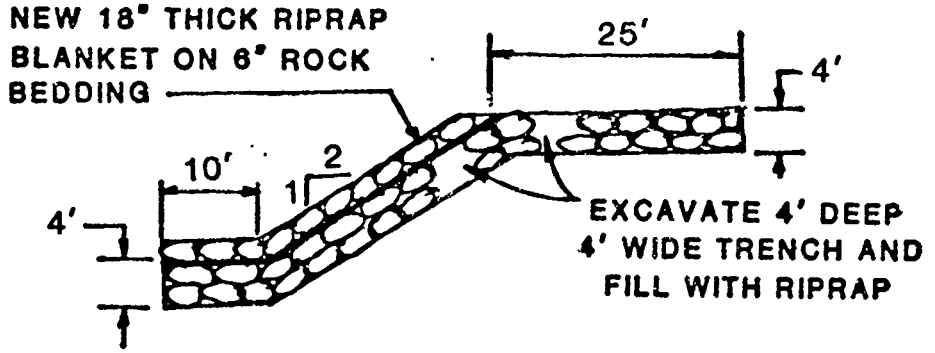
EMERGENCY STREAMBANK
PROTECTION

PLAN

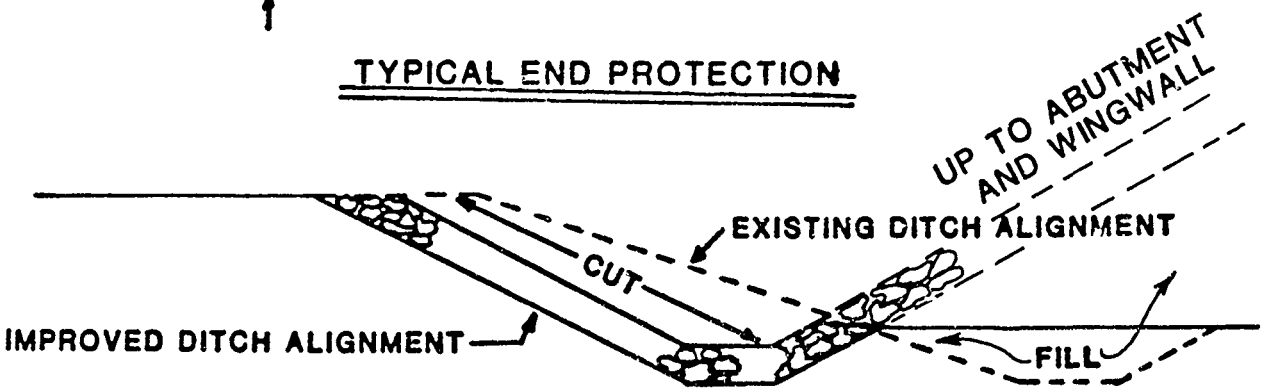
PLATE 2



TYPICAL CROSS-SECTION



TYPICAL END PROTECTION



DRAINAGE DITCH IMPROVEMENT

EMERGENCY STREAMBANK
PROTECTION
CEDAR CREEK
MONROE COUNTY, IOWA

TYPICAL SECTIONS

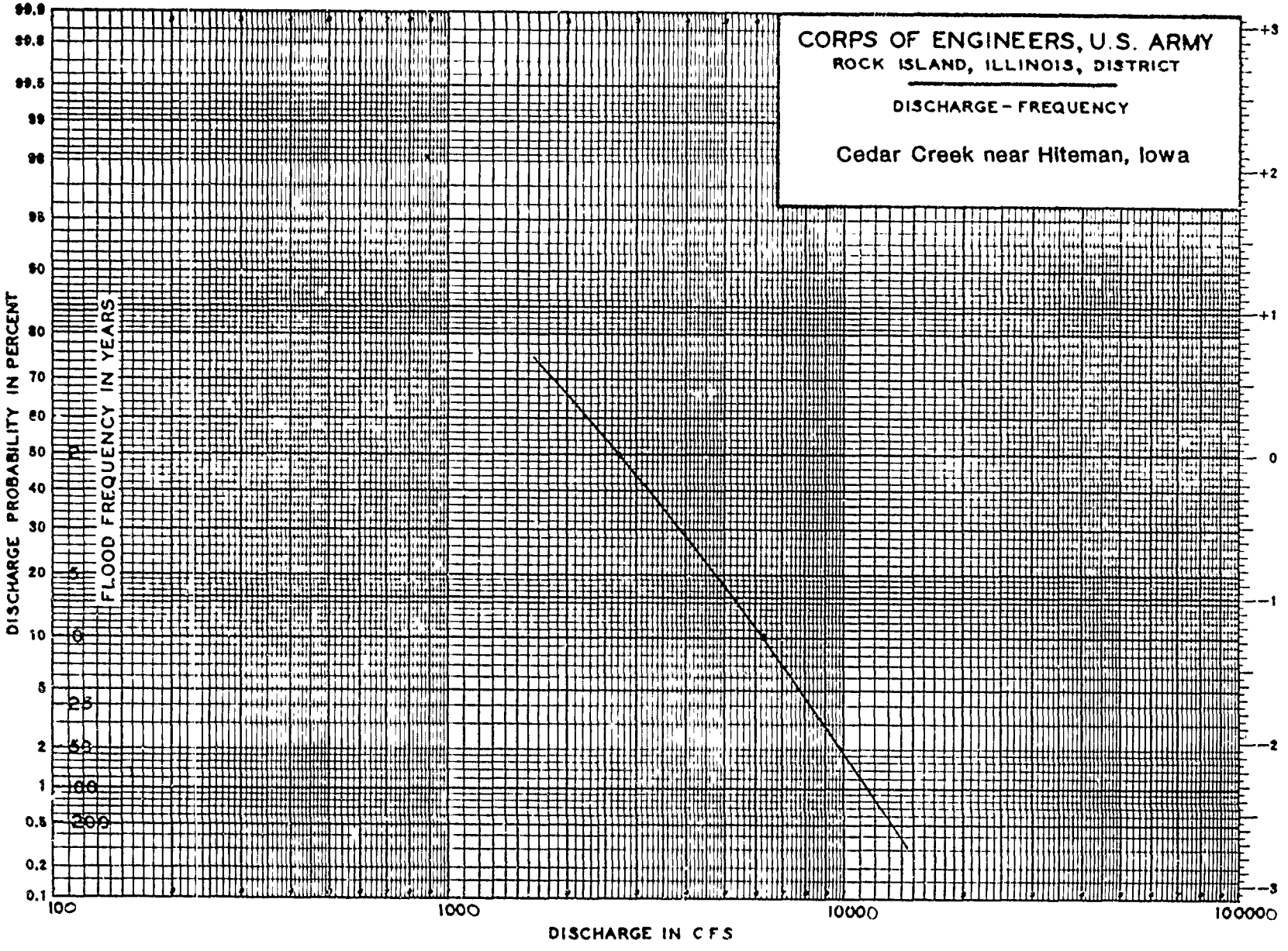
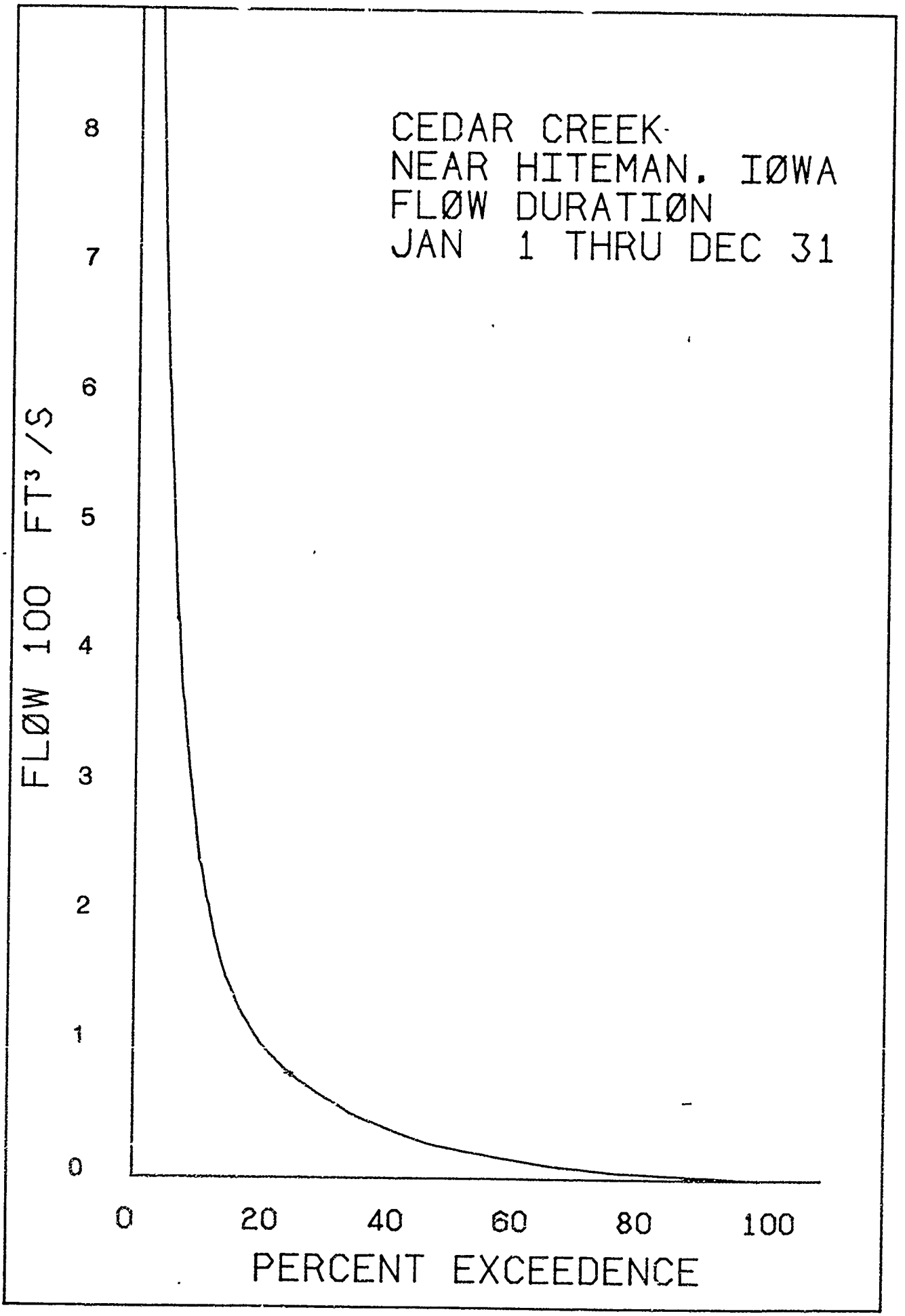

CORPS OF ENGINEERS, U.S. ARMY
ROCK ISLAND, ILLINOIS, DISTRICT
DISCHARGE - FREQUENCY
Cedar Creek near Hiteman, Iowa
DISCHARGE PROBABILITY IN PERCENT
FLOOD FREQUENCY IN YEARS
99.9
99.8
99.5
99
98
95
90
80
70
60
50
40
30
20
10
5
2
1
0.5
0.2
0.1
100
2
5
10
25
50
100
200
+3
+2
+1
0
-1
-2
-3
1000
10000
100000
DISCHARGE IN CFS

PLATE 4


CEDAR CREEK
NEAR HITEMAN, IOWA
FLOW DURATION
JAN 1 THRU DEC 31
FLOW 100 FT³/S
8
7
6
5
4
3
2
1
0
0
20
40
60
80
100
PERCENT EXCEEDENCE

APPENDIX A

PERTINENT CORRESPONDENCE

MONROE COUNTY ENGINEER
COURTHOUSE
ALBIA, IOWA 52531
515-932-7123

February 16, 1989

District Engineer
U.S. Army Engineer District,
Rock Island
Attn: Planning Division
Clock Tower Bldg.-P.O. BOX 2004
Rock Island, Illinois 61204-2004

Dear Sir:

In accordance with the provisions of Section 14 of the Flood Control Act of 1948, as amended, which authorizes the federal government to initiate investigations and studies to be made in the interest of emergency streambank and shoreline protection, the Monroe County Board of Supervisors hereby make formal application for a study of project No.F-2-1-20-00 structure No. 252761 over Cedar Creek in Section 2-T72N-R18W in Monroe County, Iowa.

The Monroe County Board of Supervisors can provide the following local cooperation and participation:

1. Provide without cost to the United States all necessary land, easements and rights-of-way, access routes and relocation of utilities necessary for project construction and subsequent operation and maintenance.

2. Hold and save the United States free from claims for damages which may result from construction and subsequent maintenance of the project, except damages due to the fault or negligence of the United States or its contractors.

3. Assume full responsibility for all project costs in excess of the federal cost limitation of $500,000.

4. Assure maintenance and repair during the useful life of the works as required to serve the project's intended purpose.

contd.

5. Provide a minimum cash contribution of 5 percent of project cost.

6. If the value of the sponsor's contribution above does not exceed 25 percent of the project cost, provide a cash contribution to make the sponsor's total contributions equal 25 percent.

Yours truly,

Maynard Tweed

Maynard Tweed, P.E.
Monroe County Engineer

CENCR-OD-SP (1145-2-303b) DATE: 26 September 1989

MEMORANDUM THRU: ~~OD-S~~ 9/26
~~OD~~
~~PD~~ 9/29

MEMORANDUM FOR: ~~PD-F~~

SUBJECT: 404 Compliance - Emergency Streambamk Protection, Cedar Creek, Monroe County, Iowa

1. Project as proposed meets criteria for Nationwide Permit at 33 CFR 330.5(a)(13) - item 13 in the attached Fact Sheet. Section 404 of the Clean Water Act is satisfied subject to the discussion below.

2. An individual 404(b)(1) evaluation is not required; and an individual 401 Water Quality Certification is not required from the Iowa Department of Natural Resources (IDNR). These requirements have already been fulfilled for the Nationwide Permit. State floodplain permit from IDNR is also not required.

3. Minor modifications will be acceptable up to the limits specified in NWP 13. However, all situations will be subject to the conditions and management practices outlined in the fact sheet.

4. This verification of compliance is valid for two years from the date of this Memorandum. If the work is not completed within this time frame, we suggest re-verification of compliance to cover potential changes or expiration of the nationwide permit. If the informational need arises, our file number on this verification is 189640.

R J Baugh

Richard J. Baugh, P.E.
Chief, OD-SP

Enclosures

CF: OD-SI

State Historical Society of Iowa

The Historical Division of the Department of Cultural Affairs

October 23, 1989

In reply refer to:
RC# 890968109

Mr. Dudley M. Hanson, P.E.
Chief, Planning Division
Rock Island District Corps of Engineers
Clock Tower Building
P.O. Box 2004
Rock Island, IL 61204-2004

RE: COE - MONROE COUNTY - EMERGENCY STREAMBANK STABLIZATION IN IMMEDIATE VICINITY OF BRIDGE ACROSS CEDAR CREEK IN THE NW 1/4 NW 1/4 OF SEC. 2, T72N-R18W

Dear Mr. Hanson:

Based on the information you provided, we find that there are no historic properties which might be affected by the proposed undertaking. Therefore, we recommend project approval.

However, if the proposed project work uncovers an item or items which might be of archeological, historical or architectural interest, or if important new archeological, historical or architectural data come to light in the project area, you should make reasonable efforts to avoid or minimize harm to the property until the significance of the discovery can be determined.

Should you have any questions or if the office can be of further assistance to you, please contact the Review & Compliance program at 515-281-8743.

Sincerely,

Kay Simpson
Archeologist, Review and Compliance Program
Bureau of Historic Preservation

/mtm

☐ 402 Iowa Avenue
Iowa City, Iowa 52240
(319) 335-3916

☑ Capitol Complex
Des Moines, Iowa 50319
(515) 281-5111

☐ Montauk
Box 372
Clermont, Iowa 52135
(319) 423-7173

TELEPHONE OR VERBAL CONVERSATION RECORD

For use of this form, see AR 340-15; the proponent agency is The Adjutant General's Office.

DATE: 12/21/89

SUBJECT OF CONVERSATION

Monroe Co. Ia. Sec. 14 - Environmental Coordination

INCOMING CALL		
PERSON CALLING	ADDRESS	PHONE NUMBER AND EXTENSION
PERSON CALLED	OFFICE	PHONE NUMBER AND EXTENSION

OUTGOING CALL		
PERSON CALLING	OFFICE	PHONE NUMBER AND EXTENSION
C. Carmack		
PERSON CALLED	ADDRESS	PHONE NUMBER AND EXTENSION
Chuck Davis	U.S. Fish + Wildlife Rock Island, Ill.	309/793-5800

SUMMARY OF CONVERSATION:

I called Chuck to discuss the above project with regard to environmental impacts and coordination under the Endangered Species Act and the Fish and Wildlife Coordination Act. I described the location of the project and the proposed action (riprapping ± 350 feet of shoreline on right descending bank, rerouting drainage ditch outlet). Chuck indicated that his agency would have no objections to the project as described.

CHARLENE CARMACK
Community Planner

DA FORM 1 APR 66 751 REPLACES EDITION OF 1 FEB 58 WHICH WILL BE USED.

☆U.S. G.P.O. 1982-564-036/0371

TELEPHONE OR VERBAL CONVERSATION RECORD

For use of this form, see AR 340-15; the proponent agency is The Adjutant General's Office.

DATE: 1/2/90

SUBJECT OF CONVERSATION

Monroe Co. Iowa Sec. 14 - Environmental Coordination

INCOMING CALL		
PERSON CALLING	ADDRESS	PHONE NUMBER AND EXTENSION
PERSON CALLED	OFFICE	PHONE NUMBER AND EXTENSION

OUTGOING CALL		
PERSON CALLING	OFFICE	PHONE NUMBER AND EXTENSION
C. Carmack	PD-E	x 570
PERSON CALLED	ADDRESS	PHONE NUMBER AND EXTENSION
Mike Bronoski	U.S. EPA Region 7 Kansas City Mo.	913/236-2823

SUMMARY OF CONVERSATION:

I called Mike to discuss the above project with regard to environmental impacts and coordination under NEPA and the Clean Air Act. I described to Mike the location of the project and the proposed action (riprapping ~350 feet of shoreline on right descending bank, rerouting drainage ditch outlet). Mike indicated that his agency would not anticipate any environmental concerns with the project as proposed.

CHARLENE CARMACK
Community Planner

DA FORM 1 APR 66 751 REPLACES EDITION OF 1 FEB 58 WHICH WILL BE USED

☆U.S. G.P.O. 1982-564-036/0371

TELEPHONE OR VERBAL CONVERSATION RECORD

For use of this form, see AR 340-15; the proponent agency is The Adjutant General's Office.

DATE: 1/4/90

SUBJECT OF CONVERSATION

Monroe Co., Iowa Section 14 - Environmental Coordination

INCOMING CALL

PERSON CALLING	ADDRESS	PHONE NUMBER AND EXTENSION

PERSON CALLED	OFFICE	PHONE NUMBER AND EXTENSION

OUTGOING CALL

PERSON CALLING	OFFICE	PHONE NUMBER AND EXTENSION
C. Carmack	PD-E	x570

PERSON CALLED	ADDRESS	PHONE NUMBER AND EXTENSION
Darryl Hayes	Iowa Dept of Natural	515/281-8675

SUMMARY OF CONVERSATION:

I called Darryl to discuss the above project with regard to fish and wildlife coordination. I described the proposed action (riprapping ± 350 feet of the right descending bank and rerouting a drainage ditch outlet), and noted that it meets the criteria for a Nationwide Permit and would not require state Section 401 certification. Darryl indicated that his agency would have no objections to the project as described.

CHARLENE CARMACK
Community Planner

DA FORM 1 APR 66 751

REPLACES EDITION OF 1 FEB 58 WHICH WILL BE USED.

☆U.S. G.P.O. 1982-564-036/0371

TELEPHONE 932-7124
(AREA CODE 515)

OFFICE OF THE
MONROE COUNTY ENGINEER
MONROE COUNTY COURTHOUSE
ALBIA, IOWA 52531

February 8, 1990

Colonel John R. Brown
District Engineer
U.S. Army Engineer District,
Rock Island
Clock Tower Building
P.O. BOX 2004
Rock Island, Illinois 61204-2004

Dear Colonel Brown:

The Monroe County Engineer, has reviewed the draft of the proposed Local Cooperation Agreement covering streambank erosion control on the tributary to Cedar Creek SW¼, Sec. 35, T73N, R18W Local County Road. The Agreement includes the following obligations to be carried out by Monroe County.

a. Provide, without cost to the Government, during the period of construction, all lands, easements, rights-of-way, and dredged material disposal areas, and perform all relocations and alteration of buildings, utilities, highways, railroads, bridges (except railroad bridges), sewers, and related and special facilities determined by the Government to be necessary for construction of the project.

b. Make a cash payment of not less than 5 percent of total project costs during the period of construction, regardless of the value of the items in a. above. If the value of the items in a. above is less than 20 percent of total project costs, Monroe County shall, during the period of construction, make such additional cash payments as are necessary to bring its total contribution in cash and value of lands, easements, rights-of-way, and utility and facility alterations and relocations to an amount equal to 25 percent of total project costs.

c. Pay all project costs in excess of Federal statutory limitation of $500,000.

d. Hold and save the Government free from all damages arising from the construction, operation, and maintenance of the project, except for damages due to the fault or negligence of the Government or its contractors.

e. Operate, maintain, replace, and rehabilitate the project or functional element thereof upon completion in accordance with regulations or directions prescribed by the Government.

f. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, approved January 2, 1971, in acquiring lands, easements, and rights-of-way for construction and subsequent operation and maintenance of the project, and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act.

g. Comply with Section 601 of Title VI of the Civil Rights Act of 1964 (Public Law 88-352) and Department of Defense Directive 5500.11 issued pursuant thereto and published in Part 300 of Title 32, Code of Federal Regulations, as well as Army Regulation 600-7, entitled "Non-Discrimination on Basis of Handicap and Programs and Activities Assisted or Conducted by the Department of the Army."

h. Participate in and comply with applicable Federal flood plain management and flood insurance programs.

i. Prior to construction, and in accordance with the provisions of Section 221 of Public Law 91-611, Monroe County will enter into a contract with the Government whereby Monroe County will grant the Government a right to enter, at reasonable times and in a reasonable manner, upon land which Monroe County owns or controls for access to the project for the purpose of inspection, and, if necessary, for the purpose of completing, operating, repairing, maintaining, replacing or rehabilitating the project. If an inspection shows that Monroe County for any reason of failing to fulfill its obligations under the Agreement without receiving prior written approval from the Government, the Government will send a written notice to Monroe County. If Monroe County persists in such failure for 30 calendar days after receipt of notice, then the Government shall have a right to enter, at reasonable times and in a reasonable manner, upon lands Monroe County owns or controls for access to the project for the purpose of completing, operating, repairing, maintaining, replacing, or rehabilitating the project. No completion, operation, repair, maintenance, replacement, or rehabilitation by the Government shall operate to relieve Monroe County of responsibility to meets its obligations as set forth in the Agreement, or to preclude the Government from pursuing any other remedy at law or equity to assure faithful performance pursuant to the Agreement.

Monroe County is willing and able to pay its share of the total project costs. Sufficient funds are on hand or can be raised quickly, and the cash payment can be deposited directly with the Government upon demand by the Government.

This is to advise that if the Definite Project Report for this project is approved substantially in its present form as reviewed by Monroe County and as submitted for approval by the Corpos of Engineer's higher authority, Monroe County is willing, and legally and financially able, to sign the referenced Local Cooperation Agreement which includes the obligations set forth above.

Sincerely,

John S. Goode

John S. Goode, P.E.
Monroe County Engineer

DISTRIBUTION LIST

DISTRIBUTION LIST FOR

DEFINITE PROJECT REPORT WITH INTEGRATED EA
SECTION 14 EMERGENCY STREAMBANK PROTECTION
CEDAR CREEK BRIDGE NO. F-2-1-20-00
MONROE COUNTY, IOWA

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HONORABLE CHARLES E. GRASSLEY, UNITED STATES SENATOR 721 FEDERAL BUILDING, 210 WALNUT STREET DES MOINES, IA 50309	
HONORABLE TOM HARKIN, UNITED STATES SENATOR 733 FEDERAL BUILDING, 210 WALNUT STREET DES MOINES IA 50309	
HONORABLE JIM LEACH, HOUSE OF REPRESENTATIVES 1514 LONGWORTH HOUSE OFFICE BLDG, WASHINGTON DC 20515	
HONORABLE JIM LEACH, REPRESENTATIVE IN CONGRESS PARKVIEW PLAZA, ROOM 204, 117 EAST 2ND STREET OTTUMWA IA 52501	
DR ALLAN HIRSCH - DIRECTOR, OFFICE OF FEDERAL ACTIVITIES (A-104) US ENVIRONMENTAL PROTECTION AGENCY, 401 M STREET SW WASHINGTON DC 20460	
FEDERAL EMERGENCY MANAGEMENT ADMIN, 500 C STREET SW ROOM 713, WASHINGTON DC 20472	
OFFICE OF ENVIRONMENTAL PROJ REVIEW, DEPARTMENT OF INTERIOR MS 4239-MIB, 18TH & C STREETS NW - ROOM 4241 WASHINGTON DC 20240	18
MR RICHARD NELSON - FIELD SUPRVR, U.S.FISH & WILDLIFE SERVICE 1830 SECOND AVE. - 2ND FLOOR, ROCK ISLAND,IL 61201	
DIVISION ADMINISTRATOR, FEDERAL HIGHWAY ADMINISTRATION PO BOX 627, 6TH AND KELLOGG STREET AMES IA 50010	

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WATER RES. RESEARCH CENTER, ATTN DR AL AUSTIN 355 TOWN ENGINEERING BUILDING, IOWA STATE UNIVERSITY AMES IA 5[illegible] 10	
MR JAMES C GRITMAN-REGIONAL DIRECTO, U.S.FISH AND WILDLIFE SERVICE FEDERAL BLDG FORT SNELLING, TWIN CITIES MN 55111	
MR LARRY CAVIN-CHIEF, ENVIRONMENTAL REVIEW BRANCH US ENVIRONMENTAL PROTECTION AGENCY, 726 MINNESOTA AVE KANSAS CITY KS 661[illegible]1	3
REGIONAL FORESTER, FOREST SERVICE US DEPT OF AGRICULTURE, 310 W WISCONSIN AVE-SUITE 500 MILWAUKEE WI 53203	2
HONORABLE TERRY BRANSTAD, GOVERNOR OF IOWA STATE CAPITOL, DES MOINES, IA 5[illegible]319	
MR STEVEN R MC CANN - DIRECTOR, IOWA DEPT OF ECONOMIC DEVELOPMENT DIVN OF COMMUNITY PROGRESS, 21[illegible] EAST GRAND DES MOINES IA 5[illegible]319	4
MR LARRY WILSON - DIRECTOR, DEPT OF NATURAL RESOURCES WALLACE STATE OFFICE BLDG, 90[illegible] EAST GRAND AVENUE DES MOINES IA 5 319	2
HONORABLE DALE M COCHRAN, SECRETARY OF AGRICULTURE WALLACE STATE OFFICE BUILDING, DES MOINES IA 5[illegible]319	
MR BOB STOECKER, IOWA DEPT OF TRANSPORTATION OFFICE OF ROAD DESIGN, 800 LINCOLN WAY AMES IA 5[illegible]10	

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WALLACE STATE OFFICE BLDG, 900 EAST GRAND AVENUE
DES MOINES IA 50319

MR DAVID CROSSON, STATE HISTORIC PRESERVATION OFFICER
BUREAU OF HISTORIC PRESERVATION, CAPITOL COMPLEX
DES MOINES IA 50319

MR JAMES JACOBSEN, BUR OF HIST PRESERV
STATE HISTORICAL SOCIETY OF IOWA, CAPITOL COMPLEX
DES MOINES IA 50319

DEAN ROOSA, STATE ECOLOGIST
WALLACE STATE OFFICE BLDG, EAST NINTH ST AND GRAND AVE
DES MOINES IA 50319

HONORABLE JOHN A PETERSON, IOWA SENATOR-34TH DISTRICT
RR 3 - COUNTRY CLUB ROAD, ALBIA IA 52531

HONORABLE JAMES J COOPER, IOWA REPRESENTATIVE-67TH DISTRICT
RR 2, RUSSELL IA 50238

MONROE COUNTY BOARD OF SUPERVISORS, COURT HOUSE
ALBIA, IOWA 52531

COUNTY ATTORNEY, MONROE COUNTY COURT HOUSE
ALBIA IA 52531

MONROE CO CONSERVATION BD, COURT HOUSE
ALBIA IA 52531

COUNTY ENGINEER, MONROE COUNTY COURT HOUSE
ALBIA IA 52531

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